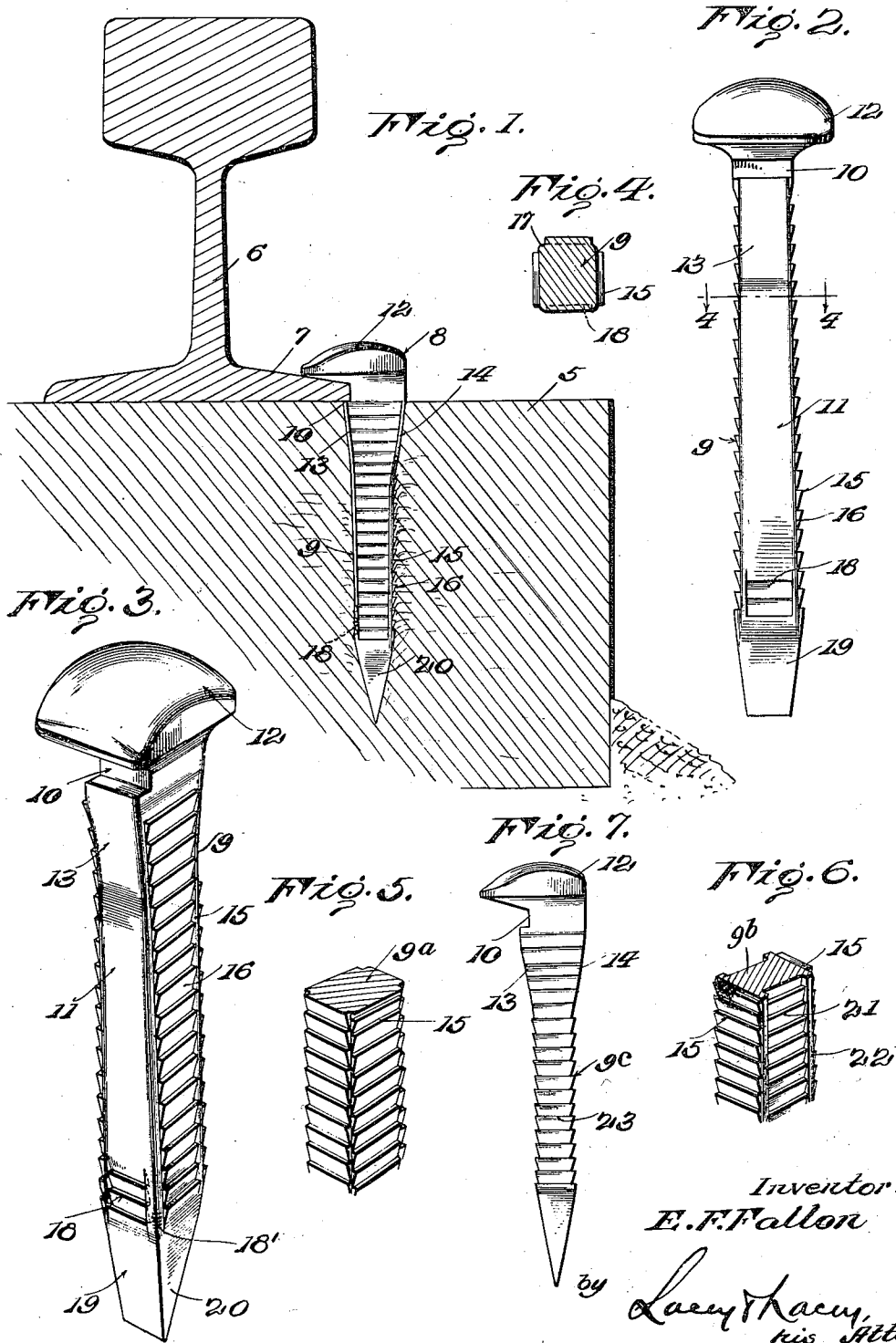


E. F. FALLON.
RAIL SPIKE.
APPLICATION FILED DEC. 8, 1919.

1,373,875.

Patented Apr. 5, 1921.



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UNITED STATES PATENT OFFICE.

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RAIL-SPIKE.

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Specification of Letters Patent.

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Application filed December 8, 1919. Serial No. 343,239.

To all whom it may concern:

Be it known that I, EDWARD F. FALLON, a citizen of the United States, residing at Harrisonburg, in the county of Rockingham and State of Virginia, have invented certain new and useful Improvements in Rail-Spikes, of which the following is a specification.

This invention relates to improvements in rail spikes having novel means for securing rails in position.

An important object of this invention is to provide a rail spike having a plurality of transverse ribs which upon driving the spike into a cross tie will be firmly engaged by the severed grains of the wood whereby the spike will be securely held against upward movement.

A further object of this invention is to provide a spike having a recess in the upper portion of its shank and novel means for directing the base of a rail into said recess upon driving the spike into the tie to the limit of its movement.

A further object of the invention is to provide a spike which is gradually tapered inwardly from its driving to its rear end so that the hole formed by the spike in the tie will be of a greater diameter at its lower end portion than at its upper end portion whereby the longitudinal movement, if any, of the spike will be downward as the result of vibration of the rail.

A further object of the invention is to provide a spike of the class described which is efficient in use, of highly simplified construction and relatively cheap to manufacture.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawing forming a part of this application and in which like numerals are employed to designate like parts throughout the same:

Figure 1 is a side elevation of the improved spike applied,

Fig. 2 is a front elevation of the same,

Fig. 3 is a perspective of the same,

Fig. 4 is a horizontal section taken on line 4-4 of Fig. 2,

Fig. 5 is a fragmentary perspective of a slightly modified form of the invention,

Fig. 6 is a fragmentary perspective of a further modification of the invention,

Fig. 7 is a side elevation of a further modification of the invention.

In the drawing wherein for the purpose of illustration are shown several preferred embodiments of the invention, the numeral 5 designates a cross tie upon which is mounted a rail generally designated by the numeral 6. The base 7 of the rail is engaged by a spike generally designated by the numeral 8, which is adapted for securely retaining the rail in position.

The improved spike includes a shank 9 having a transversely extending groove or slot 10 in the upper portion of its front face 11 and immediately below its head 12. The front face 11 has its upper portion inclined outwardly as indicated at 13, for springing the rail slightly to one side during the downward movement of the spike whereby the base of the rail is directed into said groove 10 when the spike reaches the limit of its downward movement. As illustrated in Fig. 1, the rear face of the shank 9 is also tapered outwardly at its upper end portion as indicated at 14 so as to reinforce the upper portion of the shank and to urge the shank and the head into firm contact with the base of the rail. It will be noted that the upwardly and outwardly inclined portion 14 of the rear face of the shank will act to exert a constant inward pressure on the spike whereby spreading of the rails is prevented to a high degree.

With special reference to Figs. 3 and 4 it will be noted that the rear and side faces of the shank are provided with struck out transversely extending ribs or shoulders 15 having their upper portions disposed at right angles to the longitudinal axis of the shank and the outer sides inclined inwardly, as indicated at 16, to meet the shank. Each rib 15 has its horizontal portion joining the shank at the point of connection of the inwardly inclined side of the rib immediately above so as to provide an unbroken series of ribs on each side of the shank. The ribs 15 terminate short of the adjacent faces of the shank so as to permit the corners of the shank to be rounded, as indicated at 17. The shoulders or ribs 15 thus formed are engaged by the severed grains of the wood after the spike is driven in place and serve to effectively lock the spike in position and prevent the same from upward movement as a result of rebounding of the rail. The

front face 11 of the shank may be provided at its lower portion with a plurality of shoulders or ribs 18 which are countersunk to dispose their outer edges flush with the front face 11 whereby a smooth surface is presented to the base of the rails. The ribs 18 also terminate short of the adjacent sides of the shank so as to provide reinforcing members 18'. The ribs on each face are staggered with relation to the ribs of the adjacent faces so as to strengthen and reinforce the shank, or in other words the horizontal portion of each rib is in line with the inwardly inclined portion of the ribs of the adjacent faces so as to prevent a substantial reduction in the thickness of the shank at any point.

The lower end portions of the front and rear faces of the shank are tapered inwardly as indicated at 19 to form a penetrating element or wedge for the entrance of the spike into the tie. The side faces of the shank also have their lower end portions tapered inwardly to a point as indicated at 20 for spreading the grains of the tie laterally during the driving of the spike.

With reference to Fig. 2 it will be noted that the side faces of the shank are gradually inclined inwardly from the penetrating element thus formed to their rear ends so that the hole formed by the shank will be larger at its lower end than at its upper end. In thus forming the shank, the spike is effectively prevented from upward movement and if any longitudinal movement takes place it will be downward. In other words, the grains of the wood adjacent the spike will snugly grip the same and retain the spike in the enlarged portion of the opening formed by the same. In thus forming the spike, the same is absolutely prevented from rising out of the tie as the result of expansion or rebound of the rail. More specifically the transverse ribs 15 cooperate with the inwardly tapered side faces of the shank in securely preventing upward movement of the spike. When the tapered lower end portions 20 of the side faces of the shank are driven into a cross tie, they serve to spread the grains of the tie laterally preparatory to the entrance of the body of the shank into the tie and after the spike is driven home the elasticity of the tie causes the grains of the same to snugly grip the shank to retain the same in position. When the shank has been driven entirely into the tie, the upwardly and inwardly inclined or tapered side faces of the same will have firm contact with the laterally spread grains of the tie whereby the upward movement of the spike will be stoutly resisted by said grains. When the spike is driven into the tie, the severed end portions of the grains of the tie which are extended downwardly at a slight angle firmly engage the ribs on

the front and rear faces of the shank for preventing upward movement of the spike.

In the form of the invention illustrated in Fig. 5, the ribs 15 are provided on all of the faces of the shank 9^a and extend for the full width of the same. It will be noted also that the ribs 15 on each face of the shank 9^a are staggered with relation to the ribs on the adjacent faces of the shank so as to eliminate the possibility of weakening the shank.

In the form of the invention illustrated in Fig. 6, the ribs 15 are provided on the front and rear faces of the shank 9^b and the ribs 21 on the side faces of the shank are countersunk so as to provide longitudinal reinforcing ribs 22.

In the form of the invention illustrated in Fig. 7, the shank 9^c is provided on all of its faces with transverse ribs 23 similar in construction and form to the ribs 15, though they are not staggered with relation to the ribs of the adjacent faces, but are in line with the same. In this form of the invention as in the other forms, the upper portion of the shank has its front and rear faces inclined outwardly to form the shoulders which retain the head of the spike securely in engagement with the base of the rail.

Having thus described the invention, what is claimed is:

1. A rail spike having a head and a shank, said shank being uniformly tapered inwardly from its driving end to its rear end, the greatest cross sectional area of said shank being immediately below said head.

2. A rail spike including a shank, and a head, the forward portion of said shank being formed with a penetrating element having its side faces inclined for spreading the grains of a tie laterally upon the entrance of the spike into a tie, the side faces of said shank rearwardly of said penetrating element being gradually and uniformly inclined inwardly from said penetrating element, the front and rear faces of said shank immediately below said head being tapered outwardly in a direction toward said head.

3. A rail spike including a head and a shank, the front face of said shank being provided with a transverse groove, transverse ribs formed on all faces of the shank, the side faces of said shank having their forward end portions inclined inwardly for forming a penetrating element, said side faces being tapered uniformly from said penetrating element, the front and rear faces of said shank immediately below said head being tapered outwardly in a direction toward said head whereby the greatest cross sectional area of the shank is located immediately below said head.

4. A rail spike including a head and a shank, the forward portion of said shank

having side faces tapered inwardly whereby the grains of a tie are spread laterally upon the entrance of the shank into the tie, the side faces of said shank rearwardly of said
5 portion being inclined inwardly toward said head so that the opening provided by the shank will be wider at its bottom than at its top, and a plurality of ribs formed on the faces of said shank, the front and rear
10 faces of said shank immediately below said head being inclined forwardly whereby the greatest cross sectional area of the shank is located immediately below the head.

5. A rail spike including a shank, a head
15 carried by the shank, and a plurality of transversely extending ribs formed on the

side faces of said shank, the ribs of each face of the shank being staggered with relation to the ribs on the adjacent face of the shank.

6. A rail spike including a shank, a head carried by the shank, and a plurality of transversely extending ribs formed on the faces of said shank, the ribs on each face
20 of the shank being staggered with relation to the ribs on the adjacent faces of the shank, certain of said ribs being embedded in the shank and having their outer sides flush with the face of the shank.

In testimony whereof I affix my signature. 30

EDWARD F. FALLON. [L. s.]